

Riley (C. V.)

ANNUAL ADDRESS

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BY

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AS PRESIDENT OF THE ENTOMOLOGICAL SOCIETY
OF WASHINGTON FOR THE YEAR 1884.



WASHINGTON:
GIBSON BROS., PRINTERS AND BOOKBINDERS.
1886.

Compliments of

Charles V. Riley,

Washington, D. C.

ANNUAL ADDRESS OF THE PRESIDENT.

FELLOW-MEMBERS :—Your president has experienced some difficulty in choosing a subject upon which to address you as required by our constitution. Our Society is too young for retrospect, while a review of entomological events of a general character is in a measure forestalled by the various publications devoted to our science and by the English and German Zoölogical Records. Some of the incidents of the year, so far as North America are concerned, are also recorded in my annual report as U. S. Entomologist. Yet it may be interesting to briefly refer to a few facts that have characterized the year just closed and that are sufficiently interesting to warrant comment.

On May 20th, Prof. A. J. Cook sent me some Noctuid larvæ about one-third grown, which were appearing in vast bodies, like the Army Worm, in parts of Michigan. While resembling most the darker forms of the larva of *Laphygma frugiperda* Sm. & Abb., they yet differed and did not fully correspond with any of the numerous Noctuid larvæ known to me. The species subsequently, upon being reared to the imago by Prof. Cook, proved to be *Agrotis fennica* Treitschke, and, as subsequent reports showed, was abundant and destructive over a wide area and particularly in the Ottawa district in Canada. The larval history of the species had not previously been known; neither had the species been counted as among our injurious insects. It is widely distributed, occurring in all parts of the Northern States and on the Pacific. The worm first appeared in April, and the destructive brood in May was probably a second brood. Prof. Cook gives a good account of it with very poor figures in his "Notes from the Entomological Laboratory of the Michigan Agricultural College," published independently and without date. It seems to be a general feeder, though affecting principally grass, clover and strawberries.

Almost every year some species scarcely heard of before thus



becomes conspicuous, and this sudden and wide-spread appearance of a species not previously noticeable is one of the most interesting phenomena presented for our consideration, and I have discussed it in a paper on "New Insects Injurious to Agriculture," read at the Cincinnati meeting of the A. A. A. S. in 1881, part of the abstract of which is in these words:

"These new destructive species may either be (1) recently introduced species from some foreign country, (2) native species hitherto unobserved or unrecorded, and new in the sense of not being described, or (3) native species well known to entomologists, but not previously recorded as injurious.

"The author argues that in the last two categories, more particularly, we frequently have to deal with newly-acquired habits, and in the second category with newly-acquired characters that in many cases systematists would consider of specific value. In short, he believes that certain individuals of a species, which has hitherto fed in obscurity on some wild plant, may take to feeding on a cultivated plant, and with the change of habit undergo in the course of a few years a sufficient change of character to be counted a new species. Increasing and spreading at the rapid rate which the prolificacy of most insects permits, the species finally becomes a pest, and necessarily attracts the attention of the farmer. The presumption is that it could not at any previous time have done similar injury without attracting similar attention; in fact, that the habit is newly acquired. The author reasons that just as variation in plant life is often sudden, as in the 'sport,' and that new characters which may be perpetuated are thus created, so in insects there are comparatively sudden changes which, under favoring conditions, are perpetuated. In this way characters which most systematists would consider as specific, originate within periods that are very brief compared to those which evolutionists believe to be necessary for the differentiation of specific forms among the higher animals."

The cut-worms seem to have been unusually abundant during the spring of 1884, and one species, viz., *Hadena devastatrix* Brace, common to both Europe and America, attracted a great deal of attention and did much injury in Manitoba.

Another insect which deserves particular mention is *Nematus erichsonii*. This was first ascertained to be the cause of the

death of the Larch, or Hackmatack, in Maine and other parts of New England, during the year 1883, when I had the opportunity of witnessing, in company with Dr. Packard, the wide-spread devastation which it had caused. It was fully reported on by Dr. Packard in the annual report of the U. S. Entomologist for 1883, and has, during the past year, been observed doing similar injury to Larch in parts of Canada.

The Clover Leaf-beetle (*Phytonomus punctatus*) also attracted unusual attention in 1884 and was said, at the meeting of the Entomological Club of the A. A. A. S., to have attacked beans. It has also been reported as quite abundant in parts of Ontario, and the beetle was found in countless numbers on the western shore of Lake Erie. Nothing further as to its life habits has been added to that published by me in 1881, but its occurrence in such numbers, and over so large an extent of country, so soon after its first injuries were reported, presents abundant cause for reflection and would indicate that the species is rapidly extending its range, especially westward.

Another species of the same genus, namely, *P. nigrirostris*, has been found in Canada by Mr. Jas. Fletcher, of Ottawa, also feeding upon clover.

Pulvinaria innumerabilis was unusually abundant in 1884 in all parts of the country. There is need of very careful study of the forms found upon so many different trees, forms which, on account of their general resemblance, are looked upon as being one and the same species. So far as experiments go, some which I made some 12 years since at Kirkwood, Mo., by transferring the young from one plant to another, prove, so far as such evidence is proof, that the species found upon Oak, Maple and Grape-vine are the same; but where such evidence is wanting, we must study not only the young and the males but the structural characteristics, especially those of the anal plate in the females, before we can feel assured that we have to deal with but one species.

That cosmopolitan butterfly *Pyrameis cardui* attracted considerable attention during the year, feeding upon our nettles and thistles. I refer to it, however, chiefly because of its migrations, notices of which have been abundant in European journals. The fact of the extended migration of butterflies has only recently

come to be fully appreciated. I have discussed these butterfly migrations, so far as our *Danais archippus* is concerned, in an article in the *Scientific American* for April 6th, 1878, entitled "The Migration of Butterflies," and shown that there is a very general southward movement, accompanied by congregation and concentration, from the extreme northwestern portion of the country to the Gulf States in autumn, and a return migration and dispersion the ensuing spring and summer.

It is a noteworthy fact that migrating butterflies have a wide range. That *Pyrameis cardui* flies in vast numbers over large stretches of the European Continent and across the Channel to the British Isles is a well-established fact, and the migratory tendencies have their explanation, in all probability, in the same promoting causes as those of our Rocky Mountain locust, *i. e.*, chiefly excessive multiplication and want of fresh food. Throughout southern Europe, or at least large proportions of it, the month of July is apt to be excessively dry. I witnessed last year, early in July, in South France, a phenomenal occurrence of this butterfly. Its larvæ had absolutely devoured all the thistles and even the cultivated artichokes in those portions of the *Midi* which I visited, and I saw as many as 30 chrysalides upon a single grape-leaf in a vineyard adjacent to a railroad. The butterflies were excessively numerous along the lines of the different railroads, seeking in vain for fresh plants upon which to lay their eggs, and it is no wonder that under such circumstances they congregate in increasing numbers and finally rise in the air and travel such long distances, guided by the prevailing winds. What is true of this particular species is likewise applicable to some of the Yellows (genus *Colias*). I shall never forget an experience on the morning of July 2d in training from Montpellier northward. As the train swept along it stirred up for many miles a continuous cloud of brown, yellow, and white butterflies, consisting chiefly of the species just mentioned and the common *Pieris rapæ*. In reference to this last species it may perhaps be well to mention the successful introduction, here at Washington, of one of its chief parasites, the *Apanteles glomeratus*.

Osten Sacken has recently called attention, in the *Wiener Entomologische Zeitung*, to the fact that P. J. Stepanoff has published in Russian (Proc. of the Nat. Hist. Soc. of the Univ.

of Kharkoff, vol. xv), an account of the parasitism of the larva of *Systæchus leucophaeus* Meig. in the egg-sacs of *Stauronotus vastator* Stev. His observations seem to have covered also the years 1879 and 1880, the same period during which I was gradually getting the truth as to the true character of the Bombyliid larvæ infesting the egg-sacs of *Caloptenus spretus*. It will be remembered by most of you that Mr. J. Calvert, as subsequently appeared in the Transactions of the London Entomological Society, was, during the same period, making similar observations in the Dardanelles. While the observations of Mr. J. G. Lemmon in California were subsequent to and instigated by my own (he having been employed by me to make observations and report on *Camnula pellucida*), and our observations cannot therefore be considered independent, there seems little doubt that those of Calvert and Stepanoff were entirely independent, and, as Osten Sacken points out, it is a little remarkable that in three different parts of the world similar original facts on the same family and even the same genera were being observed during the same year. Such coincidences are not at all rare in the history of discovery; indeed, they are sufficiently frequent to lead to the conclusion that they are due, in no small measure, to similar favorable opportunities owing to the abnormal abundance of the species observed.

The correspondence between Stepanoff's observations and my own go still farther, for he also found an Anthracid, namely, *Mulio obscurus*, similarly feeding in the larva state on the locust eggs, just as I found *Triodites mus* associated with *Systæchus oreas*; while he discovered also an Anthomyia egg-parasite which he determined as *Anthomyia radicum*, thus referring it to the very species to which originally I referred ours, but which was subsequently decided by Meade to be *Anthomyia angustifrons*.

While touching on the egg-parasites of the Acridiidae, it may be of interest to mention that I have recently received from Dr. A. Ernst, of Caracas, Venezuela, a number of specimens of a *Scelio* which he found very abundant in the eggs of *Acridium peregrinum*. The receipt of the specimens from Dr. Ernst has led me to study more carefully the species originally described as *Caloptenobia ovivora*, but which was subsequently, upon further examina-

tion, referred to *Scelio famelicus* Say. The result of the recent studies would indicate that *Caloptenobia ovivora*, while belonging properly to the genus *Scelio*, is really quite distinct from *Scelio famelicus*, and will therefore hold good specifically. The specimens were bred from eggs of *Ædipoda carolina* by Mr. S. H. Scudder. Those from Dr. Ernst are larger and constitute a new species which I propose to call *ernstii*, while others bred from the eggs of *Caloptenus atlanis* constitute a third species intermediate in size between the other two, and which will be described as *caloptenorum*. Dr. Ernst has also found some other parasites of the locusts themselves, and notably *Priononyx striata* Sm., just as we found *P. atrata* St. F. attacking *spretus*; also a species of *Mermis*. All these facts go to show how great is the unity of habit in the same genus in widely different parts of the world.

During the year I have had an excellent opportunity of studying the course of the French people in their fight against *Phylloxera vastatrix*, and it has been most gratifying to see how at last the insect is no longer feared by those who have tried most persistently to deal with it. With the improved methods of applying bisulphide of carbon, both by hand injectors and by more complicated machines drawn by horses, the French grape-grower can measurably protect his vineyards, and I have every hope that future experience with the kerosene emulsion will give them another important and valuable remedy; but the chief reliance is on the resistant American vines, and it was most gratifying to find, over hundreds of square miles, vineyards previously devastated entirely reconstituted by such means. In fact it was noticeable that the grape-growers there were in far greater dread of the Downy Grape-leaf Mildew, *Peronospora viticola*, which was imported in 1877 upon American vines, than of the *Phylloxera*.

Perhaps one of the most interesting discoveries of the year 1884 is the mode of oviposition in some of our Carabidæ. Schaupp (Bull. Br. Ent. Soc., I, p. 35) states that, having placed several specimens of *Carabus limbatus* in a breeding cage on March 31st, he observed afterwards in the cage one larva and several eggs; again he says (l. c.) that in a cage wherein several *Chlenius æstivus* and *Galerita janus* were kept he observed, on July 4th, one larva of *Galerita*, two of *Chlenius*, and

"several eggs." He does not describe the eggs and only refers to them (l. c., p. 26) as "usually imbedded in the earth."

From the terrestrial habits of most of our species one would expect that the eggs are deposited within the ground, and such may yet prove to be the case with many; but I have proved by actual breeding from eggs to the imago that it is not so with *Chlænium impunctifrons*, and have strong proof that *Chl. æstivus*, *Scarites subterraneus* and the genera *Dicælus* and *Galerita* share with that species its singular mode of oviposition. The remarkable and unexpected fact, in insects so essentially terrestrial, is that the eggs are laid singly on the leaves of trees and shrubs and encased in a covering of mud or clay. I had often observed these little convex mud-cells on the underside of leaves while collecting along the Mississippi in Missouri in years gone by, and was puzzled to make out their real nature. In May and June, 1883, while collecting on the Virginia side of the Potomac with other members of this Society, I found these clay cells tolerably common and, fortunately, fresh, each containing a large soft white egg. That year I obtained larvæ, but only during the past year were any of these reared to the imago. Similarly remarkable oviposition away from the food or habitat of the larva is known in the Lepidoptera and Neuroptera.

Gentlemen, it is just one year ago this evening that we organized, and while we have little to review, it may not be unprofitable to anticipate our future, or at least what we should hope and aim for.

We organized to promote the study of Entomology in all its bearings and to cultivate social and friendly relations between those in any way interested in the science. Those most interested in the organization had the latter object most prominently in mind.

We have here in Washington a number of collectors and amateurs and some well-known specialists, in addition to the force of the Entomological Division of the Department of Agriculture. The Division constitutes a force that I feel justly proud of, and the working of which has been commended by those who have had occasion to become familiar with it. Yet how far it falls short of my own ideal and of the necessities of the country, or how difficult it is to build it up to that ideal under the unfortunate political unscientific atmosphere that pervades the Department,

no one more fully appreciates than myself. The facts remain, however, that there is a good number of active observers whose interest in the subject of entomology is not confined to the particular biologic and economic work of the Division, but encompasses much that could not properly be brought within its scope. The members of the Division have, naturally, become members of the Society and form a good basis for its existence; yet it would be manifestly unnecessary, if not improper, for the members of the force to band together in private simply for the discussion of those entomological subjects which they are working with me to further in official capacities.

It was to get away from official surroundings, away from the work of the U. S. Entomologist, that the members of the Division decided to join in the organization of this Society. It was still more to get better acquainted with those of kindred tastes outside the Department, in Baltimore and elsewhere, as well as in Washington, and to cultivate social intercourse and interchange of views and experience.

From this standpoint it was, perhaps, unfortunate that you chose me as your presiding officer; for I feel deeply that we should avoid everything that may create the impression that the Society is but an echo of the official organization.

Our efforts to enlist the sympathy and co-operation of all the entomologists have been measurably successful, if not as fully so as we have wished; but by perseverance and creditable work, we may hope to enlist the co-operation of all, and in time add them all to our roll of members.

The field is wide and there is an abundance of work to do, and more particularly serious work. It is more creditable to any author to publish some full and complete account of any one insect, whose characters and habits have hitherto been unknown, or a synopsis or monograph of some genus or family, than to cast to the world a whole number of hasty descriptions of species; for while descriptive work thoroughly and faithfully done is of the highest order and most creditable, it is a fact that many entomological writers have busied themselves with descriptive work which has had little other result than to confuse and perplex all subsequent honest and serious workers in the same field.

Certain recent descriptive Coleopterological workers might be

cited, by way of illustration; but it is chiefly among Lepidopterists that the unsatisfactory and careless descriptions prevail. I would earnestly urge upon all the members of our Society the great value and significance of anatomical, embryological and histological work, and such monographic work as I have already indicated.

We are fortunate, not only in our surroundings here in Washington, but—and we may say, it without vanity—also in the diversity of the interests which our membership represents.

Messrs. Schwarz and Hubbard are already known for their work in Coleoptera. Mr. Howard is devoting himself to the study of the smaller Hymenoptera, and will easily be led to interest himself more and more in the whole Order. Our neighbor in Baltimore, Mr. Uhler, is authority in Hemiptera, and Mr. Heidemann has begun to collect in this Order with enthusiasm. Mr. Pergande has for some time been carefully studying the Thripidæ. Mr. Bruner is taking up the Orthoptera, Mr. Smith is doing good work in the Lepidoptera, while Mr. Marx is well qualified in Arachnida.

In the general bibliography of the subject Mr. Mann has few superiors, and we have several enthusiastic collectors who in due time will, let us hope, make their mark in some specialty.

My own studies are confined to no one Order, but rather embrace biologic studies in all Orders, though by way of specialty I have for many years been accumulating material and notes on galls and gall insects, of all Orders, on the Homoptera and on the Diptera.

While six years ago there were no collections in Washington worthy the name, beyond that of Coleoptera by Mr. Ulke and that of Lepidoptera by Mr. Schoenborn, we have to-day, what with the private and national collections at command, very fair representation in all Orders.

We have started on a moderate basis in the belief that it is better to go slow at first than to exhibit abnormal activity that could not be kept up in subsequent years. Slow development is correlated with longevity in the animal kingdom, and the principle has been exemplified in the history of some societies.

“Large streams from little fountains flow,
Tall oaks from little acorns grow,”

and let us hope that there is a great future for the Entomological Society of Washington.

We have for reference, aside from our private libraries, those of the Department of Agriculture, the National Museum, and of Congress, which are rapidly growing more extensive and valuable. We have, moreover, a most interesting faunal location, in which are represented many interesting species; for, while our fauna is essentially southern, many forms belonging to the northern and southern faunas unite, and have their limit line in the District. We have already planned the preparation of an insect faunal list of the District, and I sincerely hope that during the coming season further material for this work will be diligently collected; for the publishing of such a list, preliminary though it should be, will prove a fitting *début* before the world. We have therefore every reason to be hopeful for our Society.

Many of us are connected with Government work, and official life at best is more or less uncertain. Some of us may not tarry long in Washington, or may soon cease to become active members, but there is every promise that others will take the places of those of us who may leave, and in closing this first presidential address of the Entomological Society of Washington, I can but express my earnest hope that it will have a grand future, and help to promote all that is high and noble in the study of insect life, and to raise that study in the eyes of our fellow-men; to render it, in other words, worthy of the highest talent and the deepest thought.



